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basic imagery interpretation report

Liujiaping (Liu-chia-ping) VLF Radcom Transmitter Station (S)

DEPLOYED COMMO/ELEC/RADAR FACILITIES

25X1

PRC

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INSTALLATION OR ACTIVITY NAME					COUNTRY
Liujiaping (Liu-chia-ping) VLF Radcom Transmitter Station					CH
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NO.	COMIREX NO.	NIETB NO.
NA	29-35-32N 110-44-48E				

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MAP REFERENCE

AMS, Series 1505, Sheet NF49-10, scale 1:250,000
SAC, USATC, Series 200, Sheet 0494-18, scale 1:200,000

LATEST IMAGERY USED	NEGATION DATE If required

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ABSTRACT

1. [redacted] This report presents an imagery- and COMINT-derived analysis of activity observed since February 1972 at Liujiaping (Liu-chia-ping) Very-Low-Frequency (VLF) Radio Communications (Radcom) Transmitter Station, People's Republic of China (PRC).

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2. [redacted] Activity at Liujiaping since February 1972 includes the completion of the VLF antenna by May 1978 and detection of the antenna's initial activation in July 1979. Following a test period, the facility will most likely support special high-interest operations. These operations will include submarine endurance voyages and the deployment of various specialized vessels to the South Pacific.

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3. (U) This report contains a location map, four annotated photographs, and a schematic drawing.

INTRODUCTION

4. (TSR) Liujiaping VLF Radcom Transmitter Station is the largest and newest antenna of its type in the PRC. The station is situated in a mountainous area of northeastern Hunan Province, approximately 60 nautical miles (nm) northwest of Changde (Chang-te; Figure 1). The installation (Figure 2) consists of a large antenna canopy with at least two adits, a support area, and a substation (not shown on graphic). The main entrance to the installation consists of a hard-surfaced road that passes through several tunnels. This unusual entrance arrangement, the isolated location, and the difficult terrain reduce the need for extensive security measures. Liujiaping is linked to a major telecommunications landline system that extends through Hunan Province.

FIGURE 1. LOCATION OF LIUJIAPING VLF RADCOM TRANSMITTER STATION, PRC

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BASIC DESCRIPTION

Physical Features

5. (TSR) The VLF antenna at Liujiaping consists of a canopy with 36 cables extending between two ridges and a suspended ground plane reflector, or counterpoise system, beneath the antenna suspension area (Figure 3). The overall dimensions of the antenna are 3,715 meters along the south edge by 3,395 meters along the west edge by 3,593 meters along the north edge by 2,476 meters along the east edge. The canopy is supported by two canopy anchors and 15 cable suspension areas on the south ridge and by 19 canopy anchors on the north ridge.

6. (TSR) Each of the cable suspension areas consists of a 36-meter-high tension tower, a canopy support base, and a canopy anchor point. The tension tower is equipped with two suspended counterweights to insure a constant tension on each cable during varying weather conditions (Figures 4A and 4B).

7. (TSR) The canopy cables are connected to thirty-five 27-meter-high downlead towers, generally grouped in pairs, by means of down feedlines. These down feedlines are spaced approximately 45 meters apart (Figures 4A and 4C). The down feedlines are the primary propagating element of the antenna. Four insulators per canopy cable and the counterpoise system beneath the canopy act to prevent the antenna's signal from going vertically into the air or directly into the ground.

8. (TSR) Power is supplied to the antenna from two transmitter access adits via the main feedline that extends along the valley floor. This feedline, consisting of 48 lattice tower supports and six possible tuning towers, is connected to each of the down feedlines.

9. (TSR) Construction at Liujiaping began in mid-1971, and by February 1972 tunneling for the entrance to the facility was nearly complete. The installation was still in the early stage of construction in September 1974. At that time, work on the adits for the transmitters had probably been completed and the bases for the towers and canopy anchors were being constructed on the parallel ridges. By January 1975, a portion of the pattern of canopy supports was evident. The station was in the midstage of construction by October 1975. The counterpoise system was nearly complete when first identified on imagery of December 1975. Construction on the feedline and tension towers, downlead towers, and canopy anchors continued until early 1978. In May 1978 the canopy and all supports and towers appeared to be complete. Minor construction activity was noted in May 1979, however, with the installation of two POL tanks near one of the transmitter adits.

Operational Function and Status

[redacted] 25X1

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REFERENCES

IMAGERY

(TSR) All KEYHOLE imagery acquired from February 1972 [redacted] was used in the preparation of this report. 25X1

MAPS OR CHARTS

SAC. US Air Target Chart, Series 200, Sheet 0494-18, scale 1:200,000 (UNCLASSIFIED)

DOCUMENT

1. NSA. K/00/515-79, (Special Followup One and Final to 3/00/27788-79, 182125Z Jul 79), *Chinese Activate New VLF Transmitting Facility (SC)*, 191606Z Jul 79 (TOP SECRET [redacted] 25X1

RELATED DOCUMENT

USN. NAVELEX 0101,113, *Naval Shore Electronics Criteria, VLF, LF, and MF Communications Systems*, Aug 72 (UNCLASSIFIED)

REQUIREMENT

COMIREX C02
Project 290002DC

(S) Comments and queries regarding this report are welcome. They may be directed to [redacted] Asian Forces Division, Imagery Exploitation Group, NPIC, [redacted] 25X1 25X1

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